

## Chapter Twelve.

### " RELATIVITY "

THE Theory of Relativity is so complicated, that when it first came to the public notice it was said that there were probably not more than twelve people in the world capable of understanding it. But public interest was aroused, partly by the novelty of Einstein's hypothesis, and partly by the spectacular manner in which it had been received by the British Royal Astronomical Society on the night of November 6th, 1919, until Mr. Eugene Higgins, of U.S.A., offered a prize of 5,000 dollars for the best explanation of relativity, in the form of an essay, describing it so that the general public could understand what it was all about.

The prize was won by Mr. L. Bolton, London ; and his essay can be found in the *Scientific American* (New York and London), June 1921, and also in the *Westminster Gazette*, London, June 14th, 1921. The editor of the *Gazette* found it necessary to remark, when publishing the essay, that " Our readers will probably agree that even when stated in its simplest form it remains a tough proposition."

That is just the trouble with it. It is about as far removed from ordinary " fact " and " plain English " as it is possible for anything to be ; indeed it is so intangible that it may well be that Einstein can form a mental picture of it himself, while he is at the same time unable to convey his meaning to others through the medium of ordinary language.

The thing is elusive ; abounding in inference, suggestion, half-truth and ambiguity ; wherefore it follows that any discussion of it, such as we propose to enter upon, must of necessity be almost equally

refined. It might seem tortuous to some readers, and yet be like a very entertaining game of chess to others ; while it certainly will be useful to those who are willing to traverse the long and difficult labyrinth that leads to truth.

Relativity is clever ; but it belongs to the same category as Newton's Law of Gravitation and the Kant-Herschell-Laplace Nebular Hypothesis, in as far as it is a superfine effort of the imagination seeking to maintain an impossible theory of the universe in defiance of every fact against it. . . . Let us see what we can do with it.

First, we will let Professor Einstein himself tell us what he means by Relativity, in the words he used in the opening of his address at Princeton University, U.S.A. :—

" What we mean by relative motion in a general sense is perfectly plain to everyone. If we think of of a waggon moving along a street we know that it is possible to speak of the waggon at rest, and the street in motion, just as well as it is to speak of the waggon in motion and the street at rest. That, however, is a very special part of the ideas involved in the principle of Relativity."

That would be amusing if we read it in a comic paper, or if Mutt and Jeff had said it ; but when Professor Einstein says it in a lecture at the Princeton University, we are expected not to laugh ; that is the only difference. It is silly, but I may not dismiss the matter with that remark, and so I will answer quite seriously that it is only possible for me to speak of the street moving while the waggon remains still—and to believe it—when I cast away all the experience of a lifetime and am no longer able to understand the evidence of my senses ; which is insanity. . . . Such self-deception as this is not reasoning ; it is the negation of reason ; which is the faculty of forming correct conclusions from things observed, judged by the light of experience. It is unworthy of our intelligence and a waste of our



greatest gift ; but that introduction serves very well to illustrate the kind of illusion that lies at the root of Relativity.

Throughout the whole of his theories there is evidence that Einstein was thinking almost entirely of their application to astronomy, but it was inevitable that this should involve him with physics, so that he had then to engage upon a series of arguments intended to show how his principles would work out on the plane of general science. The first may be said to be the motive that inspired him ; while the second consists of complications and difficulties which he could not avoid. . . . And when he suggested that the street might be moving while the waggon with its wheels revolving was standing still, he was asking us to imagine that in a similar manner the earth we stand upon might be moving while the stars that pass in the night stand still. It is a Case of Appeal, where Einstein appeals in the name of a convicted Copernican Astronomy against the judgment of Michelson - Morley, Nordmeyer, physics, fact, experience, observation and reason. We, on the other hand, are counsel for the prosecution, judge and jury.

Under the general heading of Relativity, Einstein includes an assortment of new ideas—each of which depends upon another,—and each of which contributes to support the whole. He says that there is no ether, and that light is a material thing which comes to us through empty space. Consequently light has weight, and, therefore, is subject to the law of gravitation, so that the light coming from a star may bend under its own weight, or deviate from the straight line by the attraction of the sun, or of any other celestial body it has to pass in its journey to the observer on earth. . . . In that case it follows that no star is in reality where it appears to be, for it may be even as suggested in diagram 26. . . . Consequently the heavenly bodies may be much further away than they have hitherto been supposed to be, and every method which is based upon the geometry

of Euclid and the triangulation of Hipparchus will fail to discover the distance to a star ; because its real position is no longer known. Wherefore Einstein has invented a new kind of geometry, in order to calculate the positions of the stars by what is nothing more or less than metaphysics.

We have always been accustomed to measure things by the three dimensions of Euclid—length, breadth and thickness, but Einstein (thinking of astronomy), says that “ Time ” is a Fourth Dimension ; and proposes that henceforth things should be measured on the understanding that they have four dimensions—length, breadth, time, and thickness.

The introduction of “ time ” as a fourth proportion of things makes it necessary for him to invent a number of new terms, and also to change the names of some of those that we already know and commonly use, thus, for example—“ Space ” is changed to “ Continuum,” while a “ point ” is called an “ event,” time—as we have always understood it—no longer exists, and is said to be a fourth dimension ; while there are no such things as “ infinity ” or “ eternity ” in relativity.

That is the case for Einstein. It is the essence of his Relativity, clearly stated in plain English. The details of it represent an immense amount of labour of a refined character, the whole thing is very imaginative, and the work of an artist in fine-spun reflections ; indeed, it is of that double-distilled intricacy which finds favour with those who like mental gymnastics and hair-splitting argument ; and are fond of marvellous figures.

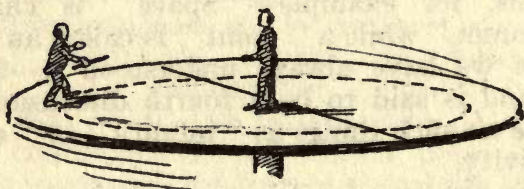
But I can conceive that in the course of time this Relative Phantasmagoria might come to be regarded as science, and be taught as such to the children of the near future ; and that is to be prevented only by dealing with it now ! which I will do, though I grieve to give so much space to a matter which only calls for it because it is pernicious.



## *Chapter Thirteen*

### EINSTEIN'S THEORIES EXAMINED

WHATEVER it is that Relativity is supposed to establish is to be disproved backwards, beginning with the example which Einstein puts forward—where an observer standing at the centre of a rotating disk is watching some one else on the same disk measuring the circumference of a circle round the observer by repeated applications of a small measuring rod; and afterwards measuring the diameter of the circle in the same way.



*Diagram 27.*

He says that because the disk is in motion, the small measuring rod will appear to the observer (at the centre) to be contracted, so that the person who is measuring (whom I will call " B ") will have to apply the rod more often to go round that circle than he would if the disk was at rest. That is not true ! . . . If B actually lays the rod (or foot rule) down upon the disk correctly, the number of applications to go round the circle will be the same whether the disk is moving or not, and the observer at the centre will see that it is so, if he is not made too dizzy to count. On the other hand, if B does not lay the rod down and measure the circle as one would expect, but only walks around the disk with the rod in the air (as in diagram 27)

then the rotation of the disk will disturb him, so that he has to make an effort to preserve his balance ; with the result that he can not place the rod as accurately as he would if the disk were not in motion ; and in that case it may take either more or less applications of the rule to go completely round than it would if the disk were still ; and that difference would be seen by the observer at the centre—not as an optical illusion ! (as Einstein implies) but in reality : a result that is entirely physical, and due to physical causes. When walking across the disk and measuring the diameter, B is not disturbed to anything like the same degree as in walking round the circumference, and so he measures the diameter more accurately. Most of us have at some time or other witnessed the antics of a clown trying to run or walk upon a spinning disk in a circus, and this enables us to understand how such a motion would affect our friends performing on Einstein's revolving table.

His example is merely amusing, it serves no useful purpose, and proves nothing ; unless, indeed, it proves by analogy that the inhabitants on a spinning earth would be rendered as incapable of acting and judging things correctly as his examples.

What we have always known as a " point " in the terms of Euclid, Einstein calls an " event ! " but if words have any meaning a point and an event are two totally different things ; for a point is a mark, a spot or place, and is only concerned in the consideration of material things ; while an event is an occurrence, it is something that happens. . . . There is as much difference between them as there is between the sentence " This is a barrel of apples," and " These apples came from New Zealand."

While claiming " time " as a fourth dimension, Einstein explains that " by dimension we must understand merely one of four independent quantities which locate an event in space." . . . This is to imply that the other three dimensions which are in common use are independent quantities, which is not the case ;



for length, breadth and thickness are essentially found in combination; they co-exist in each and every physical thing, so that they are related—hence they are not independent quantities. . . . On the contrary, time IS an independent quantity. It is independent of any one, or all, the three proportions of material things, it is not in any way related; and therefore cannot be used as a fourth dimension.

We know that an event is an occurrence; and we find that what Einstein really means by his fourth dimension is “merely the time by which we locate something that happened in space;” and that is just what time has always meant—the period between one event and another. . . Length, breadth and thickness, are proportions of each and every finite thing; while time is infinite. The dimensions are finite; while time is abstract.

Strangely enough, while Einstein claims that everything is in motion and nothing is stable, he allows one thing, and one thing only, to remain outside the realm of relativity, independent of everything else; and that is what he calls his Second Law, the Einstein “Law of the Constancy of the Velocity of Light.” He claims that the velocity of light is constant under all circumstances, and therefore is absolute.

This is a blunder of the first magnitude, but I do not imagine that he fell into it through any oversight; for it is quite evident that he was driven into this false position. He was compelled to say that the velocity of light is constant, because, if he did not his new geometry would be useless; for after all his geometry amounts to this:—

He begins by assuming that light is a material thing, so that it is affected by the gravitational attraction of any celestial bodies it has to pass on its way to earth, which causes it to deviate from its appointed course so that it comes to us with more or less curve, according to its distance, and according to the

bodies it encounters in its passage. But it always travels at the same velocity, and so, if we can estimate—for example—how much the light of Canopus is made to curve by the gravitation of other bodies between it and the earth (which would be done by Kepler's and Newton's laws), we can calculate how much longer its journey is made by those windings, twists, and turns. Then we can time its arrival, because—although it has to travel so much further than its distance would be in a straight line—it always travels at the same 671,090,400 miles an hour; or 186,414 miles every second. It is true that Einstein uses a number of signs and symbols which are supposed to simplify the process; though it is probable that they do no more than merely make it more mysterious, but the plain English of it is as I have shown; and so we perceive that Einstein uses time pretty much in the same way as we do, and not as a dimension at all.

Thus we have discovered that the things which he re-christened an Event, a Fourth Dimension, and a New Geometry, are false to the titles he has given them; the words as he uses them are misnomers, therefore we dismiss them; for they are no longer of any use or interest to us.

Now we are free to deal with his Law of the Constancy of the Velocity of Light.

We are told that Light is a material thing, and that a beam of light is deflected from a straight line by the gravitation of any and every thing that lies near its course as it passes within their sphere of influence; and we are further assured that light always maintains a uniform speed of 186,414 miles a second. . . . We have, however, to remind Professor Einstein that the "Velocity of Light 186,414 miles a second" was determined as the result of experiments by the physicists—Fizeau, Foucault, Cornu, Michelson and Newcomb, all of which experiments were conducted within the earth's atmosphere, on terra-firma; the last between Fort Myer and the Washington Monument.



In all these experiments a ray of light was reflected between two mirrors several miles apart, so that it had to pass to and fro always through the atmosphere, and it is not to be supposed that light, or anything else, can travel at the same speed through the air as it would through the vacuum Einstein supposes space to be.

Let us reverse this in order to realize it better. It is not to be supposed that any material thing travels at no greater speed through a vacuum than it does through air, which has a certain amount of density, or opacity. If anything does not distinguish the difference between air and a vacuum, then it is not a material thing; it cannot be matter. On the other hand, anything that is matter must of necessity make such a distinction, and in that case its velocity can not be constant.

Again, if a ray of light can deviate from its course by the gravitational pull of the sun, or of any other celestial body it has to pass, it must accelerate its speed while approaching that body; and slacken it again in reverse ratio after it has passed; hence it follows that its velocity is not constant.

Once more, if a ray of light can bend by its own weight, or by the law of gravitation, it is subject to other conditions, and therefore is not absolute. . . The length of the course used by Newcomb in the final determination of the Velocity of Light was 7.44242 kilometres (return course). If the ray of light had deviated by a hair's-breadth from an absolutely straight line, it never could have passed through the interstices between the very fine teeth of his revolving wheel, or return precisely to the appointed spot on his sending and receiving mirrors, which were 3.72121 kilometres, or more than two and a quarter miles apart in a bee-line. The fact that the ray of light did pass from mirror to mirror, and through the wheel, proves that it maintained a straight line; hence it is certain that it was not deflected from its course by the gravitation of the earth between the two

mirrors ; wherefore it is obvious that it was not affected by gravitation.

So we find that the very experiments by which the accepted 186,414 miles per second as the Velocity of Light was measured—experiments which were carried out with the utmost painstaking and minute attention to detail—prove that a ray of light is not influenced by the gravitation of the earth in the slightest degree. Therefore, if those experiments were good enough to warrant all the world in accepting the “Velocity of Light” they may be equally well adduced as proof that a ray of light does not bend by its own weight ; and that light is not affected by gravitation. . . . And if it is not influenced by gravitation a ray of light cannot be deflected from its course by anything it has to pass, so that its course remains true to the direction in which it was discharged ; and that is a straight line in every direction from the source. (Lord Kelvin tells us that “Light diverges from a luminous centre in all directions.”)

In brief—we find that Light is not a material thing, that it is not subject to gravitation, that it has no weight and does not bend, and that it does not describe any kind of curve ; but that it is “an expression,” in the same sense as sound is an expression, and that—as such—its velocity varies according to the density of the medium through which it passes ; and that therefore the Velocity of Light is not constant, and Einstein’s Second Law is entirely wrong ! . . . The question of the “ether versus empty space” remains unaffected by his theories, and the stars that glitter like veritable diamonds in the sky are exactly where they appear to be.

So much for Einstein’s Second Law. Now let us examine the other, the first law, or as he calls it—“The Principle of Relativity” ; which states “That all inertial systems, that is, all systems which move with uniform and rectilinear velocity with respect to



each other, are equivalent in expressing the laws of natural phenomena."

That is what the law is stated to mean. It may not appear very inviting to the general reader, but he will find it quite interesting as we proceed, though it is, of course, of very great importance to every student of general science and mechanics. As a matter of fact it is not a law at all, it is a statement. . . . At the same time it is not a plain statement; for it is equivocal, and means something which it does not say; it is a statement by implication. . . . It is as though we were to say—"Hello, Jones, how long have you been out of gaol?" That would make it necessary for Jones to prove that he had not been in gaol, in order to dispose of the implication; and so it is with this statement of the Principles of Relativity; it is an implication.

Taken literally it is true; for it states what is already known; but it implies the reverse of what it states—"that all systems which do NOT move with uniform and rectilinear velocity with respect to each other are NOT equivalent in expressing the laws of natural phenomena!" and that is very much more important.

Now if we carry this innuendo to its logical conclusion, and put it into simple language, it means—"that no reliance can be placed upon any deductions which are obtained by means of observations to the heavenly bodies, because they are taken from the surface of the earth, and the observer is moving at a different speed than the object under observation."

There would be a certain amount of truth in that if the earth was really moving; though, even if that were so, the effects of relative movement could be easily overcome by taking two observations simultaneously from opposite sides of the meridian to which the object was vertical. The effects of time would be eliminated in that way; and a mean would be found by comparing the two opposite observations. And so we find that neither the statement (or law), or

its implication, have any value. The statement might just as well have never been made.

. . . . .

With mental agility worthy of a better cause, Einstein leads from his Mechanical Principle of Relativity up to the Special Principle of Relativity, by means of one of the most extraordinary arguments it is possible to imagine ; but, strange as it is, and inconsequential as it may seem, this argument really affects everything that comes within the range covered by the word " Relativity " ; and for that reason we will not allow it to pass unnoticed.

After admitting that Electro-magnetic laws do not alter according to the system in which they occur—that is to say—after admitting that Electro-magnetic laws act the same all the world over, he proceeds to argue precisely the contrary, by saying, quite definitely, that in reality they do alter, and offers to prove it by the following statement:—" The motion of each locality on the earth is constantly changing from hour to hour, but no corresponding changes occur in electro-magnetic action."

Of course this has all the appearance of a man flatly contradicting himself, and it might even appear to be nonsense, but in reality it is a very pretty argument of the most elusive kind which it is a pleasure to meet. I will confess that I admire Einstein : he skims so close round the edge of the ice. . . .

What he suggests is this :—

The observer is located on the surface of an earth which is rotating on its axis, and at the same time travelling through space at many thousands of miles an hour, consequently his place, or locality, is continually changing with respect to an imaginary point fixed in space. Notwithstanding this change of place, electro-magnetic laws appear to act precisely as they would if this place was not changing its position with respect to that point. Therefore Einstein argues that electro-magnetic currents must, in reality, vary their



speed, and so adapt themselves to the changing conditions in such a manner as to "seem the same to the observer as if he had not changed his position."

Unfortunately he is unable to show any reason why electro-magnetic action should do this remarkable thing; for he treats it as a thing that had intelligence, as if it wilfully acted in a manner calculated to deceive the observer. When reduced to its essence, this argument proves to be no more logical than the idea that the street might be moving while the waggon was at rest. Einstein has been betrayed into supposing a thing that is altogether impossible, i.e. that a physical law can act in an unnatural manner, and yet produce an effect which appears to be normal; because he began by assuming that the locality of the observer was changing, and that assumption was untrue! Now if he can realize the fact that the earth is actually at rest, he will find that his difficulties all disappear; and that Electro-magnetic laws do not alter, neither does the locality of the observer change.

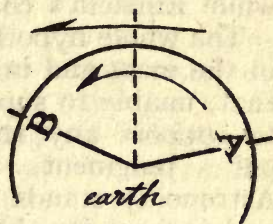
But as Einstein persisted in shutting his eyes to the fact that the earth is stationary he did not see the incongruity of his assumptions concerning electro-magnetic action, so that—in order to support his contention—he was led still further into error, and compelled to repudiate two of the Laws of Dynamics, viz.: 1. "Lengths of rigid bodies are unaffected by motion of the frame of reference;" and 2, "Measured times are likewise unaffected."

He says that these two laws of dynamics are untrue, and thought to prove they were wrong by the foregoing argument, so it becomes necessary for us to prove the fallacy of that argument in such a manner as to leave no doubt whatever as to what is true, and what is false; the two "Laws of Dynamics" 1 and 2, being the stake at issue.

Einstein believes that the earth is rotating on its axis in the direction of the arrow in diagram 28, at the

rate of 1,000 miles an hour ; and that at the same time it is travelling, *en masse*, in the same general direction along its orbit at 66,000 miles an hour ; therefore he thinks that an electro-magnetic current must travel from B to A in less time than it will take in travelling from A to B, because B is all the while running away from A, while A is always going towards B. . . .

Therefore it appears that the measured length of a current passing from B to A (and also the time it takes) will be shorter than the measured length and time of a current passing in the opposite direction from A to B ; (hence his contention that lengths of bodies and measured times must both be affected by the motion of the observer.)



*Dia. 28.*

Of course we know that his premises were wrong, and that A and B are both located on an earth which is at rest ; but, for the purpose of the argument, we will waive that, and assume the Copernican astronomy to be true. Then his argument is not so unreasonable as it seemed ; indeed it almost has the appearance of being true ; but Einstein has forgotten that the observers at A and B are both on the same earth—that they both use the same Greenwich Mean Time—and that the Electro-magnetic wave passes from one place to the other by convexion—so that the earth's atmosphere offers the same facility to its passage from A to B, as it does from B to A.

And that is the trifle that turns the scale against him. The fact that the whole operation takes place within the terrestrial atmosphere gives equal conditions to an electro-magnetic current passing in any direction within that atmosphere ; the same being unaffected by anything that may, or may not, take place in ethereal space, which the earth and its atmosphere in its entirety is unconscious of . . . . Thus, an electro-magnetic wave passes from A to B



in the same time as it passes from B to A, just as a train travelling at a uniform speed of 60 miles an hour goes from Bristol to London in the same time as it will go from London to Bristol ; while the length of the railway track measures the same from Bristol to London as it does from London to Bristol.

And so the Laws of Dynamics 1 and 2 remain true ; while Einstein's contention has been proven false.

The whole hypothesis of Relativity has failed, both in the mass and in detail, under our examination, so that, unable to support itself, it can no longer aspire to support any theory of the universe. Therefore our judgment remains unaltered. Copernican Astronomy stands condemned, and has lost its last, and perhaps its ablest, living advocate.

## Chapter Fourteen

### EINSTEIN'S EVIDENCE

BUT it will be remembered that he offered three crucial tests as evidence in support of his theories, and these we have still to examine. They are :—

1. That certain irregularities in the movements of the planet Mercury would be accounted for by Einstein's geometry.
2. That because light has weight it would bend by gravitation as it passed near another body on its way to the earth, and that this could be verified by observations taken at the time of a solar eclipse.
3. That certain lines in the spectrum would be found to shift.

We have done with mental athletics, and here we have something a little more tangible to deal with.

Of the Third it is said by the Authorities of Astronomy that the observations necessary to prove or disprove such a shifting of the lines in the spectrum would be so extremely difficult that it is practically impossible ever to do it, and therefore it is set aside.

. . . . .

The First is very well handled in an article by T. F. Gaynor in the London *Daily Express* of June 6th, 1921.

Mr. Gaynor meets Einstein on his own ground as a good astronomer should, and uses figures which take my breath away ; but, nevertheless, I will leave him to deal with crucial test number 1.

He says that the discovery of Neptune, 75 years ago, by means of Newton's Law, utterly extinguishes the Einstein theory so far as Mercury is concerned.



Irregularities similar to those of Mercury had been observed in the movements of Uranus, and in 1841 it was thought that these unaccountable movements must be due to the gravitation of some other planet at that time still undiscovered. But I will quote Mr. Gaynor verbatim :—" Uranus is 1,800,000,000,000 miles from the sun. Adams and Leverrier, applying Newton's Law, which, according to Einstein is an exploded theory, located the probable position of the undiscovered planet a thousand million miles still further on in space—and there Dr. Galle, the Berlin astronomer, found it, on September 23rd, 1846.

Thus, 75 years ago, the Newtonian law found a previously unknown planet (Neptune) at a distance of 2,800 millions of miles from the sun, yet Einstein would have us believe that the same law does not hold good with regard to Mercury ; which is only 36,000,000 miles from the sun ! . . . The " proof " he adduces from the aberration of the orbit of Mercury can be disposed of in a sentence. He has made the elementary blunder of regarding Mercury as globular instead of spheroidal."

#### LIGHT AND GRAVITY.

There remains now but one last defence of the Theory of Relativity, and that is the statement that light is really matter, and that it is subject to gravitation. (Test No. 2.)

In order to put this to the test, expeditions of British Astronomers were sent to Sobral in North Brazil, and to the island of Principe on the west coast of Africa, to observe the total eclipse of the sun on May 29th, 1919, and the results they obtained seemed to justify Einstein's main test, so that as a consequence the Royal Astronomical Society held a remarkable meeting at Burlington House on November 6th, 1919 ; and on the next day all the world of astronomy did homage to Einstein.

The results of the eclipse appeared to satisfy the gathering at Burlington House. Sir Frank Dyson, the Astronomer Royal, described the work of the expeditions, and convinced the meeting that the results were definite and conclusive. Dr. Crommelin explained that the purpose of the expeditions was to test whether the light of the stars that are nearly in a line with the sun is bent by its attraction, and if so, whether the amount of bending is that indicated by the Newtonian law of gravitation, viz. : seven-eighths of a second at the sun's limb, or the amount indicated by the new Einstein Theory; which postulates a bending just twice as great. . . . The results of the observations were 2.08 and 1.94 seconds respectively. The combined result was 1.98 seconds, with a probable error of about 6 per cent. This was a strong confirmation of Einstein's Theory, which gave a shift of 1.75 seconds.

The fourth dimension was discussed, and it appeared that Euclidian straight lines could not exist in Einstein's space. All lines were curved, and if they travelled far enough they would regain the starting point. Mr. de Sitter had attempted to find the radius of space. He gave reasons for putting it at about a billion times the distance from the earth to the sun, or about sixteen million light-years! This was eighty times the distance assigned by Dr. Shapley to the most distant stellar cluster known. The Fourth Dimension had been the subject of vague speculation for a long time, but they seemed at last to have been brought face to face with it.

Even the President of the Royal Society, in stating that they had just listened to "one of the most momentous, if not the most momentous, pronouncements of human thought," confessed that no one had yet succeeded in stating in clear language what the theory of Einstein really was. . . . But he was confident that "the Einstein Theory must now be reckoned with, and that our conceptions of the fabric of the universe must be fundamentally altered."



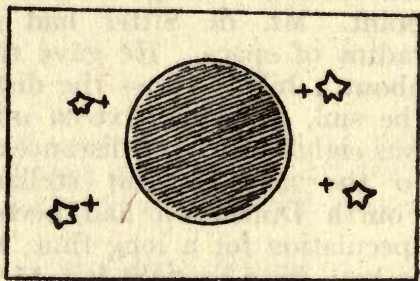
Subsequent speakers joined in congratulating the observers, and agreed in accepting their results. More than one, however, including Professor Newell, of Cambridge, hesitated as to the full extent of the inferences that had been drawn, and suggested that the phenomena might be due to an unknown solar atmosphere further in its extent than had been supposed, and with unknown properties.

With such a reception as this it is not surprising that the followers of Copernicus everywhere should be almost willing to believe in Relativity whether they understood it or not; but the Royal Astronomical Society might have been a great deal more careful than they were, as we shall see:—

That the Einstein Theories were automatically coming to be regarded as accepted science, is evidenced by the fact that the Astronomer Royal himself introduced them into a public lecture on eclipses which he gave at the Old Vic. in the February of 1921.

Coming to the description of the eclipse of May 29th, a slide was thrown upon the screen to illustrate the result of the observations that were said to verify Einstein's Theory. (See diagram 29.)

The lecturer described how certain stars which were in the same direction as the sun could, of course, not be seen in the ordinary way in the day time, but when the sun was obscured, as at the time of a total eclipse, they could be seen through a smoked glass or telescope. The exact position of these stars was known to astronomy, but if Einstein's Theory was correct the light coming from them to the observer would be bent as it passed near the sun, so that they would not appear to be in their true positions. Then



*Diagram 29.*

he showed how the Einstein Theory was verified ; for the stars were observed to be a little further from the sun than their theoretical or true positions.

But the Law of Gravitation is " That mutual action between masses of matter by virtue of which every such mass tends toward every other, &c., &c."

Observe that it tends toward ; it attracts ; it pulls : therefore—if light was matter, and was affected by the gravitation of the sun, the stars would be seen nearer to the sun ; and not as stated by the lecturer and illustrated on the slide.

In diagram 29 the crosses XX suggest the normal, true, or theoretical positions of the stars with respect to the sun. If Einstein's theories had been right the stars would be seen nearer to the sun than the crosses, but the Astronomer Royal demonstrated the fact that they were actually further away !

Such was the real result of the solar eclipse of May 29th, 1919. The circumstances had been laid before the Royal Astronomical Society in Burlington House on November 6th, and yet, for some unaccountable reason they failed to perceive that the result was contrary to the Law of Gravitation ; and clearly demonstrated the fact that Einstein's Theory is false.

N.B.—The real cause of the displacement of these stars from their true positions is known to the author, and will be explained in a book sequel to this work ; but he does not consider that explanation necessary to the present discussion. Einstein's Theory is disproved ; alternative or no alternative.